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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,952	11/26/2003	Steven Charles Miller	133311UL	9412

7590 12/19/2005

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EXAMINER

JAWORSKI, FRANCIS J

ART UNIT	PAPER NUMBER
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3737

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/723,952	Applicant(s) MILLER, STEVEN CHARLES	
	Examiner Jaworski Francis J.	Art Unit 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/29/04, 3/10/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/10/05, 10/29/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 – 6, 9 – 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Jago (US6547732) which teaches a method of ultrasound imaging including transmitting waves into the body volume at different angularly steered directions, receiving echoes as steering frames indicative of density interfaces including those associated with distal shadowing within the volume, and spatially compounding the steered frames into an image (col. 5 lines 7 – 19 as exemplary), and highlighting the shadows for example by color or amount of hue (col. 5 line 54 – col. 6 line 3) which is a form of color tinting. The peak amplitude selection format for anisotropic reflectors is tantamount to highlighting an area of orthogonal or head-on reflection (col. 3 lines 27 – 38).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 – 3 and 9 – 11 are further rejected under 35 U.S.C. 103(a) as being unpatentable over Jago as applied to claim 1 above, and further in view of Guracar et al which teaches inter alia providing highlighting of shadowing regions 32, 34 onto the spatially compounded display using calculated functions based upon the imaging data.

Claims 7, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jago in view of Guracar et al and claims 7 – 8, 16 - 17 over Jago in view of Tirumalai et al (US6879181), further in view of Li (US5582173).

Whereas the former is silent as to 'backcalculation of echo reflection data', it would have been obvious in view of Guracar et al col. 12 lines 24 – 61 to use backcalculations to introduce highlighting markers of shadows or bright areas into a spatially compounded image. In the alternative, it would have been obvious in view of Tirumalai et al to use the detected shadow-emphasized data as a regional anatomic landmark for motion detection to estimate between frame displacement for building the compounded image, see col. 10 lines 46-53, whereupon Li evidences in fig. 4 and 7 that estimating motion is in effect a backcalculation of displacement distance using intercorrelation data between such marker regions and an exponential statistical curve relating the degree of correlation to distance separations.

Claims 18 – 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Jago and Guracar et al insofar as both are directed to production of highlighting of shadowed regions in spatially compounded images by

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frame reconstruction and/or backcalculations (Guracar et al), and whereas the former is silent as to a computer program, it states that processors are used and in the allied Guracar et al teaching a personal computer is used to perform the backcalculations associated with production of marker highlighting such that a computer program product on a (memory) medium would have been the only feasible way to effect the implementation.

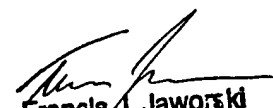
Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of Jago and Guracar et al as applied to claim 18 above, and further in view of Tirumalai et al and Li for reasons paralleling those set forth against this feature supra.

Ebbini et al (US6705993 and 6951540) are cited as pertaining to use of shadowing identification for tumor diagnosis and also identification of the extent of lesions caused by rf ablation, see the latter patent cols 5-6 bridging, col. 12 lines 34 – 59 and col. 14 bottom. Walker et al (US6692439) teaches frame weighting to detect calcified shadowing, see col. 13 lines 21-38 and claim 28. Cribbs (US4272991) is directed to production of both simple (shadowing detecting – col. 1 lines 28-35) and compound side-by-side images.

Any inquiry concerning this communication should be directed to Jaworski Francis J. at telephone number 571-272-4738.

FJJ:fjj

12-02-2005


Francis J. Jaworski
Primary Examiner